



Alcohol withdrawal is an obstacle in the treatment of fractures

Florentin Dimofte ^{1,2}, Cristina Dimofte ³, Sorin Ungurianu ², Cristina Serban ^{1,4}, George Țocu ^{1,5,†}, Nicoleta Cârnelci ^{1,6}, Iulia Filip ^{1,4}, Laura Bezman ⁶, Ana Fulga ², Dana Tutunaru ⁵, Irina Mihaela Abdulan ^{7,*†}, Bogdan Mihnea Ciuntu ^{8,*†}, Raul Mihailov ^{4,†}, Alin Mihai Vasilescu ^{8,†} and Dorel Firescu ⁴

¹General Surgery Clinic, "St. Apostol Andrei" County Emergency Clinical Hospital, 800578 Galați, Romania; florentin.dimofte@ugal.ro (F.D.); cristina.serban@ugal.ro (C.S.); george.tocu@ugal.ro (G.Ț.); nicoleta.carnelci@ugal.ro (N.C.); iulia.filip@ugal.ro (I.F.)

²Department of Morphological and Functional Sciences, Faculty of Medicine, "Dunarea de Jos", 800008 Galați, Romania; sorinungurianu@yahoo.com (S.U.); ana.fulgaa@gmail.com (A.F.)

³Department Radiology, "Saint John" Emergency Children Hospital, Str. Gheorghe Asachi, Nr.2,800487 Galați, Romania; cristina.dimofte90@yahoo.com

⁴Department of General Surgery, Faculty of Medicine, "Dunarea de Jos", 800008 Galați, Romania;raul.mihailov@ugal.ro (R.M.); dorelfirescu@yahoo.com (D.F.)

⁵Department of Laboratory Medicine, Faculty of Medicine, "Dunarea de Jos", 800008 Galați, Romania; dana_tutunaru_cmgl@yahoo.com

⁶Department of Ophthalmology, Faculty of Medicine, "Dunarea de Jos", 800008 Galați, Romania; laura.bezman@ugal.ro

⁷Department of Medical Specialties I, "Grigore T. Popa" University of Medicine and Pharmacy, 700115 Iași, Romania

⁸Department of General Surgery, "Grigore T. Popa" University of Medicine and Pharmacy, 700115 Iași, Romania

Abstract. The purpose of this study is to highlight the risks associated with treating patients experiencing alcohol withdrawal who are admitted to an Orthopaedics and Traumatology Clinic in North-Eastern Romania, an area known for high alcohol consumption. The study focused on analyzing 510 patients admitted to the orthopaedics and traumatology clinic at "St Andrew" General University Hospital in Galați over a 5-year period (2015-2019). Out of these patients, 215 had various upper limb fractures, while the remaining 295 had lower limb and pelvic fractures. The age groups most affected by alcohol withdrawal were 40-50 years. Emergency surgery was performed on 45 of these patients, while the remaining 65 developed early alcohol withdrawal, delaying the surgery. These patients were then given temporary fracture immobilization and transferred to a psychiatric hospital for further treatment. Among the 65 transferred patients, 30 had fractures that required orthopedic casting. Out of these 30 patients, 15 returned with a deteriorated or missing cast. They managed their symptoms by reducing alcohol consumption, taking vitamins, and did not require transfer to a psychiatric facility.

Key words - withdrawal, psychomotor agitation, open fracture, compartment syndrome.

Introduction

In the southern region of Moldavia, it is widely known that there are numerous vineyards. Each farmer owns acres of grapevines, tending to them annually to produce large quantities of wine and brandy for personal consumption.

During a 24-hour shift, we attend to around 40 patients with various traumatic and chronic conditions. Among them, at least three

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display symptoms of alcoholic facies, anxiety, shaking, and signs of alcohol withdrawal. Fortunately, most present with acute traumatic injuries that can be managed by the orthopaedics ward without requiring hospitalization. However, those who come in for orthopaedic check-ups often have worsened casts, resulting in simple non-displaced fractures progressing to serious fractures with additional complications necessitating surgery or leading to skin lesions due to non-compliance with medical advice.

If patients have a lower limb injury, many of them arrive for their check-up either walking on the orthopaedic cast or having already removed it at home. The same situation occurs with upper limb fractures, where the orthopaedic cast is either damaged or completely taken off.

In our weekly report, at least 2 of the admitted patients experience alcohol withdrawal within 48 hours of admission. This requires us to delay the surgery and arrange for a transfer to a psychiatric hospital for psychomotor stabilization and treatment before proceeding with orthopaedic surgery.

The aim of this paper is to look at the evolution of the patients with different types of fractures who suffer from alcohol withdrawal during hospitalization, and the complications that can arise because of the unpredictability of this syndrome.

Material and Method

This study is an epidemiological investigation conducted over a period of five years (2015-2019) involving a group of 510 patients who were hospitalized and underwent surgery for various upper or lower limb fractures at the Orthopaedics and Traumatology Ward of "St Andrew" General University Hospital in Galati. The study focused on patients who experienced alcohol withdrawal during their hospital stay.

Out of the 510 patients, 215 had upper limb fractures, while the remaining 295 had lower limb and pelvic fractures [1]. The group comprised 435 male patients and 75 female patients, with the majority (422 patients) originating from the rural areas of the region. In terms of education, 35 patients graduated high-school, 411 gymnasium, and 74 patients had primary education or no education. The age groups most affected by alcohol withdrawal were the 40-50 age group (131 patients) and the 51-60 age group (203 patients).

Out of 430 patients, 88 consumed distilled spirits, 245 consumed wine, 99 consumed beer, and 78 consumed any alcoholic beverage. Among the 105 patients who suddenly experienced alcohol withdrawal, 35 drank any alcoholic drink, 46 consumed wine, and 24 consumed beers. As a result of the abrupt onset of withdrawal in these 105 patients, emergency surgery was only possible for 45 patients. The remaining 65 patients developed early alcohol withdrawal, which caused a delay in their surgery, necessitated temporary fracture immobilization, and then they were transferred to a psychiatric hospital for proper treatment [7,8]. Out of the 65 patients who were transferred, 30 of them had fractures and received orthopaedic casts. Unfortunately, 15 of these patients returned with casts that were either deteriorated or missing.

Among all the admitted patients, 405 received specialized treatment and experienced milder withdrawal symptoms. Additionally, 60 patients were administered varying doses of alcohol to prevent withdrawal, and 20 of them had their milder withdrawal symptoms resolved through medication, hydro-electrolyte re-balancing, and the use of vitamins, anti-convulsive, adrenergic, aesthetic, and antipsychotic drugs. [9].

The management of alcohol withdrawal can be challenging due to the potential presence of other medical conditions and the unpredictable nature of the syndrome. While international medical guidelines suggest using medication to reduce withdrawal symptoms and prevent their progression, this approach may not always be effective and can have serious consequences for patients before and after surgery [2,13,15].

RESULTS

Out of the 215 patients with upper limb fractures, 25 experienced complications within 48 hours of being admitted to the hospital. These complications included:

- 20 patients with re-injured fractures
- 4 patients whose orthopaedic cast caused further deterioration of the fracture, resulting in haemorrhagic blisters under the cast
- 1 patient with associated nerve damage [3];

Many of the challenges arose for patients with lower limb and pelvic fractures. Their actions, influenced by their personality disorder and alcohol-related dementia, exerted pressure on the injured limb [4,6]. Out of the 295 patients, there were 15 cases of femoral neck fractures, 163 cases of trochanteric fractures, 11 cases of femoral fractures, 37 cases of leg fractures, 43 cases of ankle fractures, 12 cases of pelvic fractures, and 14 cases of calcaneus fractures.

Out of the 295 patients, 65 experienced various complications including:

- 20 patients with worsening fractures and bleeding blisters;
- 20 patients with skin issues under their orthopaedics casts;
- 10 patients who converted closed fractures to open fractures. These patients had fractures in the lower third part of both leg bones, where a transcaneal pin was initially attached for traction and to release the fracture focus. They developed hallucinations, alcohol withdrawal symptoms, and psychomotor agitation. As a result, they were immobilized with a femoral cast

and transferred to the psychiatric ward for stabilization. Upon their return, they exhibited skin necrosis around the reopened wound [2,16].

- 6 patients with secondary fracture and sprain.
- 4 patients with deep vein thrombosis.
- 3 patients with pulmonary thromboembolism.
- 2 patients with compartment syndrome [5].

The majority of patients experienced withdrawal symptoms within the first 48 hours of hospitalization. Out of the 65 patients transferred to the psychiatric hospital, only 45 underwent surgery before experiencing withdrawal symptoms. The remaining 20 patients had their surgeries after returning to the orthopaedic ward. The first group of patients also received cast immobilization for surgical safety, fracture prevention, and implant preservation. Among the 45 patients who underwent surgery within the first 48 hours, 20 placed pressures on the fractured limb, leading to the need for additional surgical intervention.

Out of the 20 patients admitted to the psychiatric ward:

- 10 patients came back with worsened fractures and blisters. The initial step was to treat the blisters followed by a second definitive surgical intervention.
- 4 patients experienced open fractures for the second time, requiring a temporary surgical intervention until the wound healed, followed by a definitive surgical intervention.
- 4 patients had deep vein thrombosis.

Out of the 405 individuals undergoing treatment in the orthopaedic ward, 10 experienced blisters as a side effect, 5 developed deep vein thrombosis, 3 had compartment syndrome, 3 experienced pulmonary thromboembolism, and 7 individuals converted a closed fracture into an open one [9,13]. A total of 60 patients were administered small amounts of alcohol during their hospital stay. Out of these, 15 experienced complications. Specifically, 4 patients developed deep vein thrombosis, 1

patient had compartment syndrome, 2 patients experienced pulmonary embolism, and 8 patients developed secondary blisters.

It's important to note that none of the 35 patients with higher education backgrounds who experienced withdrawal symptoms displayed personality disorders requiring transfer to the psychiatric ward. Instead, they were closely monitored for fluid balance and received daily infusions of 4 vials of B1 and B6 vitamins, effectively helping them manage the withdrawal period [14,15].

Discussions

These findings indicate that symptoms of alcohol withdrawal typically manifest around 48 hours after an individual stops drinking. The severity of withdrawal symptoms appears to be influenced by factors such as social class, age, and the type of alcohol consumed. Patients in the 51-60 age group residing in rural areas, with secondary education, and who primarily consumed wine and beer exhibited the most severe withdrawal symptoms. Conversely, individuals with higher education levels, better dietary habits, and who consumed spirits or wine experienced milder withdrawal symptoms. They were able to manage their symptoms by reducing their alcohol consumption, taking vitamins, and did not require transfer to a psychiatric facility. In contrast, patients aged 50-60 in rural areas who consumed wine or beer daily (2-3 litres per day) and had primary education exhibited more severe withdrawal symptoms.

The presence of an upper limb fracture resulted in fewer complications due to delayed surgery caused by abnormal blood test results. On the other hand, patients with lower limb fractures, particularly those who did not undergo surgery, required more complex surgical procedures as their fractures worsened over time. Patients who underwent successful osteosynthesis before deterioration, particularly for femoral and leg fractures with intramedullary rods, continued to

recover even after experiencing psychotic episodes, eliminating the need for additional surgery.

Immobilizing a patient experiencing psychomotor inadaptation with a lower limb fracture can lead to complications. The choice of implant is crucial, and timely surgical intervention can prevent psychomotor agitation, with intramedullary osteosynthesis being the preferred method before considering casting.

A patient experiencing alcohol withdrawal may display symptoms such as restlessness, sweating, speech difficulties, and agitation. It's important to inquire about the patient's alcohol consumption, including the amount, type of alcohol, duration of use, and when they last drank. The patient's overall medical history will assist the doctor in addressing the immediate crisis through prompt treatment, including administering diazepam I.M. after 2 hours, intravenous vitamins (4 vials of B1 and B6), fluids, and, if appropriate, psychotropic medication, along with any necessary orthopaedics interventions.

Patients with fractures in both upper and lower limbs, damaged orthopaedics casts, and blisters required daily disinfection of the blisters, nerve surgery as necessary, and protective padding until the blisters healed and the bones were stabilized.

Patients with closed fractures that later became open were hospitalized for a longer period and underwent surgical treatment. The infected area was sanitized, samples were taken and treated with antibiotics, temporary stabilization was done using external fixators or k-wires, and finally, definitive stabilization was performed.

Two out of the three patients developed pulmonary thromboembolism before undergoing surgery, while one patient developed it after the surgery. Symptoms of deep vein thrombosis may include leg swelling, oedema, redness, and

sensitivity, and if left untreated, it can lead to pulmonary thromboembolism. This condition often occurs in patients with lower limb fractures, prolonged bed rest, or underlying health issues. [5]

Compartment syndrome arose in two patients following a crush injury and was promptly addressed through surgical intervention to alleviate intra-compartmental pressure via fasciotomy. Crystalloid solutions were also administered, and once the compartment was decompressed, the fracture was surgically treated.

CONCLUSIONS

It is essential to promptly diagnose and treat patients at risk of alcohol withdrawal upon admission to the hospital. Early intervention, including metabolic support, vitamin therapy, and hypnotic therapy, can prevent the onset of alcohol withdrawal symptoms.

Alcohol withdrawal poses serious risks, such as exacerbating injuries, causing neurovascular damage, pulmonary thromboembolism, and even osteomyelitis. In some cases, postponing surgery due to early alcohol withdrawal has led to suboptimal long-term surgical outcomes.

Administering intramedullary surgery within 48 hours of admission and providing metabolic support appears to be the most effective approach for reducing the complication rate in patients at risk of alcohol withdrawal.

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